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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,942	04/08/2005	Hideyoshi Horimai	211A 3707 PCT	2364

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SUITE 1140
LOS ANGELES, CA 90067

EXAMINER

LAMB, CHRISTOPHER RAY

ART UNIT	PAPER NUMBER
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2627

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,942	Applicant(s) HORIMAI, HIDEYOSHI	
	Examiner Christopher R. Lamb	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 is/are allowed.
- 6) ☒ Claim(s) 6-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 27th, 2007 has been entered.

Claim Objections

2. Claim 5 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other claim. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 6-11 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Horimai et al. (US 5,917,798).

Regarding claim 6:

Regarding claim 6:

Horimai discloses an information reproducing method in which the information is reproduced from a recording medium (column 10, lines 3-20) wherein information is recorded by utilizing an interference pattern formed by the interference between an information light (column 10, lines 3-20), which is spatially modulated by digital pattern information displayed in a spatial light modulator which has a large number of pixels (column 12, lines 5-16), and a reference light for recording (column 10, lines 3-20), wherein:

a reference light for reproduction is radiated to the recording medium to generate a reproduction light by which said digital pattern is carried (column 22, line 59 to column 23, line 10); and the matching and mismatching of the attributes of adjacent pixels in the digital pattern information of the reproduction light are detected (column 21, line 21 to column 22, line 11).

Regarding claim 7:

In Horimai's method, a detector for detecting reproduction light has a plurality of pixels, and the pixels of detector are disposed on a border of adjacent pixels in said digital pattern information (column 21, line 21 to column 22, line 11).

Regarding claim 8:

In Horimai, digital pattern information of said reproduction light is expressed by a plurality of pixels aligned in one dimension of said spatial light modulator (Fig. 23A, 23B).

Regarding claims 9:

Horimai discloses:

An information recording/reproducing method wherein information is recorded to a recording medium by utilizing an interference pattern from by interference between an information light (column 10, lines 3-20), which is spatially modulated by digital information displayed in a spatial light modulator which has a large number of pixels (column 12, lines 5-16), and a reference light for recording (column 10, lines 3-20), and information is reproduced from a recording medium to which information is recorded (column 10, lines 3-20), wherein:

digital information that is recorded is digital pattern information (column 21, lines 21-64) and expressed by the matching or the mismatching of the attributes between adjacent pixels in the spatial light modulator (column 21, lines 21-64: a "0" or "1" is represented by mismatching pixels, and error data is represented by matching pixels: the error data is part of the "digital pattern information" because it used as a tracking pixel pattern);

the reproduction light which carries digital pattern information is generated by irradiating the recording medium with a reference light for reproduction (column 10, lines 3-20; column 22, lines 10-25); and

the matching and mismatching of attributes of adjacent pixels in the digital pattern information of the reproduction light are detected (column 21, line 21 to column 22, line 11).

Regarding claim 10:

In Horimai said digital pattern information is expressed by a plurality of pixels disposed in one dimension of said spatial light modulator (Fig. 23A, 23B: the data is aligned in rows).

Regarding claim 11:

In Horimai said spatial light modulator has a large number of pixels arranged as a grid and combines a plurality of digital pattern information expressed by a plurality of the pixels arranged in one dimension to display as two-dimensional pattern information (Fig. 23A, 23B).

Regarding claims 14/9, 14/10, and 14/11:

In Horimai the detector for detecting said reproduction light has a plurality of pixels and the pixels of said detector are disposed on the borders of adjacent pixels in said digital pattern information (column 21, line 21 to column 22, line 11).

Regarding claim 15:

Horimai discloses an information recording method wherein information is recorded in a recording medium by utilizing an interference pattern formed by interference between information light (column 10, lines 3-20), which is spatially modulated by digital pattern information displayed in a spatial light modulator which has a large number of pixels arranged in a grid (column 12, lines 5-16), and reference light for recording (column 10, lines 3-20), wherein:

digital information that is recorded is digital pattern information and expressed by the allocation of pixel groups comprising a succession of a plurality of pixels whose attributes are matched to each other within a predetermined area of the spatial light

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modulator (column 21, line 21 to column 22, line 11: the tracking pixel pattern is in a predetermined area and contains pixels whose attributes are matched to each other).

Regarding claim 16:

In the method of Horimai, a plurality of said pixel groups are disposed in a predetermined area (column 21, line 21 to column 22, line 11).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horimai in view of Suganuma (JP 07-152095).

Regarding claims 12/9, 12/10, and 12/11:

Horimai discloses a recording/reproducing method as discussed in the rejection of claims 9, 10, and 11.

Horimai does not disclose wherein "digital pattern information is such that a pixel whose attribute does not match that of one adjacent pixel is displayed so as to invariably have a pixel whose attribute matches on the other end."

Suganuma discloses recording digital pattern information where a pixel whose attribute does not match that of one adjacent pixel is displayed so as to invariably have a pixel whose attribute matches on the other end (abstract).

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Suganuma discloses that this helps eliminate diffraction during recording (abstract: Suganuma is not recording on the same kind of medium but the principle is still the same).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Horimai as taught by Suganuma to include wherein said digital pattern information is such that a pixel whose attribute does not match that of one adjacent pixel is displayed so as to invariably have a pixel whose attribute matches on the other end.

The motivation would have been to reduce error during recording, as taught by Suganuma.

Regarding claims 13/9, 13/10, and 13/11:

In Horimai in view of Suganuma digital pattern information is such that a pixel whose attribute does not match that of one adjacent pixel is displayed so as to invariably have a certain number or more of consecutive pixels whose attributes match on the other side (this is similar to claim 12 and similarly taught by Suganuma).

Allowable Subject Matter

7. Claims 1-4 are allowed.

8. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1:

The closest prior art of record, Horimai, does not disclose if the attributes of the adjacent pixels match each other, one of the digital information "0" and "1" is expressed;

and if the attributes of the adjacent pixels do not match each other, another one of the digital information "0" and "1" is expressed.

Instead, in Horimai, matching pixels are used to display tracking pattern information and mismatching pixels are used to indicate both "0" and "1."

This limitation in combination with the other elements of the claim renders it allowable over the prior art of record.

Regarding claims 2-4:

They are dependent on claim 1.

Response to Arguments

9. Applicant's arguments filed March 27th, 2007, have been considered. Applicant only referenced claim 1 in their arguments. This claim has been allowed as noted above. Applicant did not amend or provide arguments as to the allowability of claims 6-16. These claims have been rejected as per the previous Office Action.

Conclusion

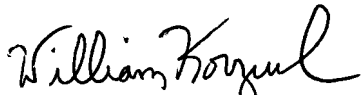
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (571) 272-5264. The examiner can normally be reached on 9:00 AM to 6:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 5/30/07


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